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DISCUSSION PAPERS

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A Cost-Effective Method for Targeting Social Safety-Net Benefits

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A Cost-Effective Method for Targeting Social Safety-Net Benefits

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Introduction

The objective of this study is to outline a cost-effective method for implementing a social safety net in a poor country. A social safety net (hereafter referred to as "safety net") is a system set up for the transfer of income and/or services to the poorest of the poor in order to allow them to survive. It is the mechanism of last resort available to poor people to ensure a minimum level of nutrition and health. Depending on the wealth of a country, a safety net may include income for food, basic health services, and shelter. In poorer countries the safety net may only include enough food to ensure survival.

Many developing countries in need of implementing a safety net are hampered by problems inherent to the proper targeting of benefits to the poor.[2] Some of the most common problems are inadequate information about the differential rates of poverty among geographical regions; inadequate information about the depth and severity of poverty among households within a given region; and weaknesses in the administrative and supervisory system at the central and local levels. Targeting the benefits of social programs has been a main recommendation for developing countries by international agencies.[3] In the past, a strategy used to keep safety-net costs to a minimum was the implementation of highly centralized poverty programs that mixed broad geographical targeting with the targeting of particular demographic groups. Such strategies created duplication of services, unintended recipients, and an administrative burden.[4] Because developing countries typically lack the financial resources to provide assistance to the poor on a broad scale, there is a need for highly accurate targeting to keep the cost of the safety net at a minimum. However, such sophisticated targeting mechanisms are costly and require high levels of managerial and administrative skills to implement.

A better method for allocating safety-net benefits for these countries is one that can be easily and efficiently implemented through the participation of local governments and local institutions, since they know better than central authorities about the needs of poor households at a lower level of aggregation. This paper outlines such a method, which, through the reduction of service duplication and leakage of benefits to unintended recipients, will reduce the cost of the safety net and allow assistance to reach the most vulnerable groups. In addition, this method would reduce the complexity and cost of implementing the safety net in those areas where community organizations do play a significant role in the distribution of social services. This method is based on the results of field observations in the municipalities of San Ramón and Matiguás, in northern

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[2]Margaret Grosh, 1994. "Towards Quantifying the Tradeoff: Administrative Costs and Targeting Accuracy." In van de Walle, Dominique, and Kimberly Nead, eds. *Public Spending and the Poor*. World Bank, Washington, D.C.
[3]World Bank, 1990. *World Development Report: Poverty*. Washington, D.C.; Lipton, Michael, and Martin Ravallion, 1993. "Poverty and Policy." Policy Research Working Paper 1130, World Bank, Washington, D.C.
[4]A review of past centralized efforts in safety-net administration can be found in van de Walle and Nead, op. cit.

Nicaragua, and on the analysis of vulnerable groups using Nicaragua's 1993 Living Standards Measurement Survey (LSMS) data.

The Problem of Cost-Efficient Targeting

Targeting social assistance remains an inexact science. USAID-assisted countries that have a safety net in place tend to rely on piecemeal programs that are operated by their respective ministries and have little coordination in terms of geographic coverage, the coverage of particular demographic groups, or the nature of the assistance itself. As a consequence, one can find large amounts of duplication and leakage of benefits to nonintended recipients, and a corresponding high cost of the safety net.

Part of the problem is that defining a safety net requires more information at the municipal level, more interinstitutional coordination, and a clear consensus among providers and municipal governments about the nature of benefits and beneficiaries. The other part of the problem is that the efficient implementation of a safety net requires proper monitoring in order to reach the deserving population while keeping the fiscal impact low. Solving both parts of the problem require skills that government workers lack—especially in very poor countries—unless the method for targeting benefits is appropriate for dealing with these constraints.

Ideally what is needed is a targeting method that can be implemented by municipal governments under a block-grant arrangement from the central government. The method should identify vulnerable groups at the municipal level, assess their needs by type of vulnerability, help screen recipients (making sure that the safety net does not replace existing social and family arrangements), and minimize local corruption and leakage.

Complex targeting methods, which use formal household surveys to estimate household expenditures, are too expensive and too technically sophisticated for use in many developing countries on a regular basis.[5] They also can be insufficient for reaching the poorest of the poor because of problems inherent in the transfer of sample statistics to the household level.[6] Problems often cited with these methods include an inability to detect variability from season to season in agricultural-based economies, and screening criteria that are easy to manipulate and that undermine existing social arrangements.[7]

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[5]For a detailed description of *Ficha CAS*, a sophisticated targeting scheme used in Chile, see Tarcisio Castañeda, 1991. *Para combatir la pobreza*. Santiago, Centro de Estudios Públicos. A similar approach was adapted for Colombia (*Ficha SISSBEN*). Both systems are heavily demanding on technical and managerial resources.

[6]Peter Lanjouw and Martin Ravallion, 1998. "Benefit Incidence and the Timing of Program Capture." Policy Research Working Paper 1956, World Bank, Washington, D.C.

[7]Van de Walle and Nead, 1994. Op. cit.

Recent methodological advances, in which household variables from surveys are combined with census data to produce more detailed poverty maps, only account for a household's probability of being poor, and leaves out the depth of poverty—a crucial element in identifying potential beneficiaries of a safety net.[8] One way to address this problem is to use a two-step approach, which would use the detailed information of household surveys and the detailed knowledge of household needs provided by local informants. The formal, national-level survey data, used to locate geographic targets, would be combined with field-level data gathered from community leaders and local institutions, resulting in a simple method for selecting target households. This approach has been used in Asia to target specific social programs.[9]

Targeting the Poor with the Aid of Local Institutions: The Experience of Mexico and Honduras

Mexico: The PROGRESA Pilot Project

Two years ago Mexico began a pilot program for the poor that relies on an elaborate system of household information designed to minimize targeting error. The targeting method used is very elaborate and exceeds the technical and administrative resources of most small, poor countries in Latin America.[10] The *Programa de Educación, Salud, y Alimentación* (PROGRESA) provides an income transfer to families in extreme poverty and to families that rely on the income generated by the work of their children to keep them above the threshold of extreme poverty.[11]

To combine income assistance with human capital investment, PROGRESA provides an income transfer tied to school attendance. The amount of the transfer increases in direct proportion to a child's grade level—children in higher grades receive progressively larger benefits. Income transfers are given to poor children in selected communities all the way through secondary school. School-attendance records are provided by participating schools and verified by the local school council in which parents participate.

Beneficiary families are also provided a basic health package, which combines maternal and child health, nutrition advice, family planning, preventive treatment for infectious diseases, and vaccinations. In addition, beneficiary families receive nutritional supplements targeted to pregnant and lactating women, and infants between four months and two years of age. In case of

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[8]Jesko Hentschel, Jean Olson Lanjouw, Peter Lanjouw, and Javier Poggi, 1998. "Combining Census and Survey Data to Study Spatial Dimensions of Poverty." Policy Research Working Paper 1928, World Bank, Washington, D.C.

[9]Martin Ravallion and Quentin Wodon, 1998. "Evaluation of Targeted Social Programs when Placement is Decentralized." Policy Research Working Paper 1945, World Bank, Washington, D.C.

[10]Gobierno de México, Secretaría de Planificación y Presupuesto, 1997. *PROGRESA—Programa de Educación, Salud, y Alimentación*. México, D.F.; José Gómez de León, Daniel Hernández, Susan W. Parker, and Patricia Muniz, 1997. "The Evaluation of Progresa." Paper prepared for a seminar on the evaluation of antipoverty programs, Inter-American Development Bank, December 10, 1997.

[11]The information in this section is based on Coordinación Nacional de PROGRESA, 1998. "PROGRESA. Programa de Educación, Salud, y Alimentación. Manual de Operación." Mexico City.

malnutrition, a supplement is provided to children between two and four years of age. The nutritional supplement consists of 20 percent of the minimum caloric intake and 100 percent of micronutrient requirements. The program includes education in health and nutrition for participating families. For those families not receiving a nutritional package directly, PROGRESA provides a monthly transfer equivalent to 34 percent of the average monetary income of families in extreme poverty. Given that people in extreme poverty have a high income elasticity, most of the transfer will be spent on additional food for family members.

Communities are selected for participation in the program on the basis of their standing in the poverty map and on their degree of access to social infrastructure—a combination of the poverty-line and basic-needs methods of poverty measurement. Within each selected community each household is surveyed in order to determine whether it is eligible for the program. Each household receives an "index of eligibility," which is based on key variables considered to be highly correlated with extreme poverty.

To maintain eligibility, families are monitored by community promoters—local volunteers who link the program with beneficiaries. These promoters are usuallyviewed as community leaders. To keep the program honest, the list of beneficiaries is provided at town meetings. This technique prevents nondeserving families from receiving program benefits.

The role of local governments within PROGRESA is relatively small, while the role of state governments is relatively large, since they must administer the basic health package (an improved version of the ordinary package provided by the public health system) and ensure access to public schools.

PROGRESA is a pilot project that can be used as a frame of reference for social programs in middle income countries. However, because of its financial, technical, and managerial requirements, it needs to be scaled down in order to be applicable to poor countries.

Honduras: The Programa de Asignación Familiar (PRAF)

PRAF was created as a mechanism for attenuating the negative impacts of Honduras' structural adjustment program on the poor. It has four core programs for social assistance, each of which is described below.[12]

Bono Escolar. This program, formally known as the Voucher Program for Female Heads of Household (*Proyecto Bono Mujer Jefe de Familia*), began in 1990. Every month for the ten months of the school year, the *Bono Escolar* gives US$5 to the mother of a child in grades one to three if the family is classified as extremely poor and the woman is the head of the household. Assistance is capped at three children per household, for a maximum of US$15 per month. Thus,

[12]This information in this section is based on personal interviews with PRAF staff and on Programa de Asignación Familiar (PRAF), 1998. "Memoria Institucional Cuatrienal. Período Gubernamental 1994–1997." Tegucigalpa, Honduras.

total yearly assistance per household can range from US$50 to US$150. The main objectives of this program are to increase income in extremely poor households with school-age children; to keep children in school; and to promote community organization and participation in primary education.

Targeting is done with the objective of reducing leakage to nondeserving households.[13] First PRAF determines the geographical areas of assistance using a poverty map based on the percentage of malnutrition,[14] the Index of Basic Needs, and population. The combination of these sources yields the area goals and the amounts to be distributed to the selected areas. PRAF uses public schools as the distribution network for the *Bono*. The *Bonos* are given to each mother by the school principal, using a computerized master list provided by PRAF's central offices. Mothers sign a receipt every time they receive the *Bono,* which can be redeemed in exchange for food items at local grocery stores, and are then cashed at the local bank. Local banks redeem the *Bonos* at the Central Bank, which in turns sends them to PRAF for accounting. Thus, in theory, PRAF can trace the cashing of each *Bono* if needed.

To qualify for the *Bono* each mother must file a form with her name, level of education, income, and address. To this end, the community is organized in small committees in charge of helping during the targeting and income verification process. The information is verified by the local teacher or nurse. Complaints and allegations of fraud are reported to the local municipal development committee. Since the program targets very poor and very small communities, the verification process is fairly straightforward. According to PRAF staff, field evaluation indicates that close to 80 percent of the *Bono* is spent on food. PRAF now serves 38 percent of children between the ages of seven and nine, and 26 percent of children enrolled in grades one to three.

Bono Materno Infantil. This *Bono* is a mere income transfer to extremely poor families receiving medical care through the health system network. It is given to pregnant and lactating women, children under five years of age who are at nutritional risk, and handicapped children under twelve years of age. There is a cap of three beneficiaries per household. The goals of the program are to improve the diet of vulnerable groups; to promote increased coverage of curative and preventive health services by using the income transfer as an incentive; to reduce the incidence and damage of disease among vulnerable groups; and to promote health education among beneficiaries and the community. In 1997 the program served 137,187 beneficiaries. Because coverage is contingent upon pregnancy, nutritional risk, and trips to a local clinic, it is hard to say how effective PRAF is at targeting mothers and children at risk. The indirect evidence from the Ministry of Health indicates that most health treatments occur in the emergency room at local and regional hospitals, which suggests that local health posts are covering only a portion of its target population. However, there is no hard evidence one way or the other.

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[13]The design of the targeting mechanism was prepared with technical assistance from the Inter American Development Bank.

[14]PRAF considers this rate to be very reliable, since it is based on the periodic reports from schools and health posts throughout the nation.

Bolsón Escolar. This program began in 1992, providing limited coverage to marginalized populations. It provides a backpack with school materials to poor children attending grades one to three. The main objectives of the program are to increase poor children's access to school materials; to increase student attendance and facilitate learning. Because of the program's limited coverage, the total value of the backpacks distributed to date is less than US$370,000, or less than US$10 per beneficiary per year. Although the amount distributed per beneficiary is small, it is well-targeted, since poor families often lack the cash to buy school materials and as a result keep the children out of school. Although there is no formal evaluation of this program's impact on poverty, it does seem to have an impact on school attendance, especially if combined with nutrition assistance.

Bono de Tercera Edad. This is an income transfer program for the elderly, providing limited coverage of 12,000 people. The value of the transfer is US$5 a month, and is given to elderly people with monthly incomes of less than US$30 per month—resulting in an income increase of 16. percent per person per year. This program is expected to continue at the present level of assistance and coverage.

The experiences in Mexico and Honduras show that implementing a safety net with local participation is both feasible and desirable, since the absence of sufficient funding for assisting the entire population below the poverty line creates a need for local control of program leakage. In the case of Mexico, leakage is reduced with the help of local promoters—generally women—who serve as program advocates. In the case of Honduras, leakage is reduced with the help of teachers and nurses providing local education and health services. In both cases, however, there is no empirical evidence as to the effectiveness of such mechanisms in controlling leakage. So far, the anecdotal evidence indicates that if selected communities have a high incidence of extreme poverty, targeting becomes more crucial; the objective selection of poor communities becomes paramount. Within a selected community, local leaders must receive clear and concise criteria by which to select program participants and, once the selection is done, define the amounts of benefits to be received by each family.

Poverty and Safety-Net Needs in Nicaragua

In the 1980s, the World Bank developed the Living Standards Measurement Survey (LSMS), a mechanism used to measure the extent of poverty and the characteristics of the poor in developing countriesThe Nicaraguan LSMS, conducted in 1993, involved a household survey administered in urban and rural areas in all regions of Nicaragua, and community and price questionnaires administered only in rural areas. The survey, which included a sample of 4,213 households (23,135 individuals) was designed to ascertain poverty levels and characteristics of the poor, levels of child malnutrition, access to and use of health and education services, labor participation, levels of unemployment, and informal sector employment. About half of the four million people who live in Nicaragua fell below the poverty line, and about one-fifth of the total population were extremely poor—that is, besides being poor, their expenditures were insufficient to cover their food needs (Table 1). Most of the poor are in rural areas and close to one-half of

the rural poor live in extreme poverty.[15] In terms of the depth of poverty, the indicators of the poverty gap—the percent increase in per capita expenditures necessary to reach the poverty line—also show that people in rural areas are worse off than in the rest of the country. On average, the income of the urban and rural poor would have to increase almost 22 percent in order to reach the level of the poverty line, but rural dwellers in extreme poverty would have to increase their income by 40 percent in order to reach the extreme poverty line threshold.

Table 1. Profile of Poverty, Nicaragua, 1993

	Head count of people living in poverty and in extreme poverty (% of *total* population)			**Poverty gap (% of expenditures below poverty line)***		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
Poor	50.3	31.9	76.1	21.8	10.9	37.1
Extreme poor	19.4	7.3	36.3	33.9	23.9	40.5

Source: Calculated from World Bank, 1995.
*Poverty gap for extreme poverty refers to percent of expenditures below the *extreme* poverty line.

Directly relevant to the issue of a safety net is the number of people in extreme poverty—those whose income is not enough to cover basic food expenditures. Almost 20 percent of the entire population in the country does not have sufficient income to cover a food budget large enough to provide the minimum caloric requirements for long-term subsistence. The vast majority of the households in extreme poverty are located in rural areas, with an average expenditure that is 40 percent below the income needed to purchase minimum food requirements. Based on these figures, the needs for a safety net in Nicaragua are very significant. In 1993 the per capita income requirements for the purchase of a basic food basket was about US$17 per month. *If 19.4 percent of the total population needs to increase its income by 33.9 percent to meet minimum food requirements, then the cost of a safety net would be approximately US$4.86 million per month, or US$58.32 million per year.*[16]

Nicaraguan LSMS data were used to estimate the size and broad regional location of the most vulnerable population groups within the country. The area in which to focus the research was further narrowed to the two municipalities of San Ramón and Matiguás, due to their classification as extremely poor by Nicaragua's official poverty map. The Consulting Assistance on Economic

[15]The head count of poverty is estimated by $P=((\sum_I P_I)/n)100$, $P_I \in (Y_i<Y_p)$, where P is the proportion of the population living in poverty, and P_I represents the individual whose expenditure Y_i is below the expenditure threshold Y_p. The poverty gap is estimated by $PG=1/n \sum_i^q [(Y_p - Y_i)/Y_p]$, $q \in n$. A detailed discussion on these concepts can be found in Martin Ravallion, 1992. "Poverty Comparisons: A Guide to Concepts and Methods." LSMS Working Paper No. 88, World Bank, Washington, D.C.
[16]This is a gross approximation. The 1995 population was 4.35 million, of which about 844,000 people were in extreme poverty. The estimated *extreme* poverty gap would result from multiplying the number of people in extreme poverty by an extreme poverty gap of US$5.76, which is 33.9 percent of US$17.

Reform (CAER) team conducted open-ended interviews with local officials and nongovernmental organizations (NGOs), and selected informants in the two municipalities. Information on the extent and levels of poverty in the communities, the safety-net services currently provided, and how the communities identified the recipients of such services was obtained through interviews. Identification of clear and consistent ways used by local people and organizations to rank the poor into different categories was sought. Local, specific indicators of poverty were obtained and compared with the formal, national-level survey data. The CAER team also evaluated external factors that would influence the design of a safety net, such as the presence of central government ministries, local NGOs, and grassroots organizations that worked in community development and that could be contracted to deliver safety-net services (a detailed account of local conditions can be found in the trip report in the Annex).

Identifying Eligible Households: Are There Any Vulnerable Groups?

The conventional wisdom behind using safety nets is that the government must protect vulnerable groups—those groups at a higher risk of malnutrition and bad health than the rest of society. Traditionally it has been the case that single female heads of household, pregnant and lactating women, poor children under five years of age, and the elderly are the groups at most risk; the targeting of benefits is generally tied to the presence of these markers in a given household. In Nicaragua, empirical evidence shows that single female heads of household with children under five years of age, the handicapped, and the elderly faced the same risk as the rest of the poor. That is, these three groups did not show an additional level of vulnerability than the rest of the poor population.

Table 2. Distribution of Nominally Vulnerable Groups in the LSMS Sample of 1993

Type of vulnerability	Percent of households by type of vulnerability and expenditure quintile				
	1 (poorest)	2 (poor)	3	4	5 (richest)
Households headed by single women with children under five yrs.	2.8	15.3	8.3	36.1	37.5
Households with member with severe disability	19.7	21.6	19.2	22.4	17.2
Elderly living with children under five yrs.	12.4	14.6	21.1	17.3	34.6
Elderly living alone	9.8	9.8	14.3	21.4	44.6

Source: Estimated from LSMS data; n=23,634.

As Table 2 shows, single female heads of household with children under five years of age are not poorer than the rest of other single female heads of household. Approximately 20 percent of Nicaraguan households are headed by women. Only 2.8 percent of the households headed by single women with children under five years are in the lowest expenditure quintile (extreme poverty), and another 15.3 percent are in the second lowest expenditure quintile (poor). Although the table shows that targeting poor women with children is desirable—18.1 percent of single women would be in the two lowest expenditure quintiles—care must be taken to avoid including them automatically as potential beneficiaries of the safety net, *since most households headed by single women with children under five years were not poor*. This finding may be atypical of most countries where poverty is less prevalent than in Nicaragua, but it is consistent with the findings in Honduras,[17] which shares similar sociodemographic and poverty characteristics. The above finding suggests that when poverty is widespread—affecting more than 50 percent of the population—it inevitably affects all types of poor households, including those headed by men or by a couple, and targeting single women with children under five years is an imperfect way for transferring income to those in need.

Another interesting finding about vulnerability relates to physical handicaps. LSMS data show that families with severely handicapped members are evenly distributed across all expenditure classes. Given that Central America relies on the protection of extended families for survival, the finding makes some sense. The same can be said of the elderly, who seem to live with their families instead of by themselves, as in the case of middle- and high-income countries. The data also indicate that a targeting mechanism of households in extreme poverty must rely on other markers besides those associated with the traditional vulnerable groups.

Using Other Markers of Extreme Poverty

In Nicaragua, the key correlates of poverty are access to running water, household size, educational attainment, and work in agriculture.[18] Specifically, households in the Segovias, (northern and central regions of Nicaragua), households without access to running water, larger households with more children, households in which the head has little or no education, and households that derive a large part of their income from agricultural activities, have a higher probability of being poor than their counterparts in other countries. Rural Nicaraguans in general tend to have increased levels of poverty due to a lack of infrastructure and basic services. The empirical evidence from the 1993 LSMS suggests that having access to safe water and sanitation would also produce substantial leakage of transfers to nondeserving households, since there are many nonpoor people without access to safe water and sanitation who would benefit from that

[17]In Honduras, the percentage of households headed by women with young children was evenly distributed across the first four quintiles of the income distribution. In the case of households headed by women (with or without young children) a larger proportion of the sample (34 percent) were in the lowest income quintile. Gustavo Arcia, and Tanya Scobie, 1998. "Honduras: A Strategic Assessment of the Social Sector." Consulting report prepared for the Inter-American Development Bank, Center for International Development, Research Triangle Institute, NC.
[18]World Bank, 1995. "Nicaragua Poverty Assessment." Main Report Vol. 1, Report No. 14038-NI, Country Department II, Country Operations Division, Latin America and the Caribbean Regional Office, Washington, D.C.

access if an adequate supply system were available.. However, when one considers the educational attainment of the head of the household, as well as the number of children under twelve years of age, there is an average difference between the extreme poor and the rest of the population that can be used as a marker for targeting social services (Table 3). Because total per capita expenditures for each household are unobserved, the above characteristics could be used to impute the amount of transfer that would accrue to each variable. This process can be done in sequence, by first selecting communities with a predominance of extremely poor people, and then using the above variables to determine the amount to transfer to each deserving household.

Table 3. Household Characteristics by Poverty Level, 1993

Characteristic	Extreme poor	Poor	Nonpoor
Access to piped water (%)	33.5	55.4	81.8
Access to well water (%)	33.0	27.3	13.2
Other (%)	33.5	17.3	5.0
Total (%)	100	100	100
Toilet (%)	3.1	13.7	48.2
Latrine (%)	55.1	64.3	46.8
Do not have (%)	41.8	22.0	5.1
Total (%)	100	100	100
Education of head of household (years)			
Male	1.2	2.5	6.1
Female	1.1	2.4	4.7
Number of children (ages 0–12)	3.6	2.6	1.6

Source: LSMS 1993.

Targeting Within a Community: The Evidence from Comarca El Horno in San Ramón

The evidence from the CAER fieldwork suggests that local leaders do know the gradient of poverty in their communities. They just need an objective mechanism to corroborate their observations and to assign transfers. In San Ramón, the qualitative evidence provided by a local female leader from the *comarca* El Horno[19] is a case in point. The woman lives in Horno 3, a hamlet of forty-eight families located about ten miles from San Ramón. Horno 3 families consider themselves poor. However, the local leader was able to do the following mapping:

[19]A *comarca* is a hamlet that can group between forty and eighty households living within walking distance to a school or health post. Although it does not have a local government, it has communally elected local leaders recognized by the municipal government in the municipal council.

Table 4. Assessment of Poverty by a Local Leader, Comarca El Horno, Municipality of San Ramón			
Households in need of survival	**Extreme poor households**	**Very poor households**	**Poor households**
1	15	30	3

Her analysis was clear: if limited funding was available and the population had to make priorities, she would follow the criteria shown in Table 4. The family that the leader would select first was that of a young widow with three children under five years who had no means of sustenance. Then the leader would attend the needs of about fifteen families that were poorer than the other families in the hamlet, and then move on to the rest.

Defining the Transfer of a Safety Net

In order to approximate the size of a transfer based on socioeconomic markers for human capital investment—such as the presence of infants or school-age children—one can rely on econometric estimates of the variables associated with extreme poverty. In principle, it is necessary to model only the sample population classified as living under the poverty line, since an econometric evaluation of the entire poor and nonpoor population would yield coefficients that would associate the model variables with the average income for the entire population. Since the safety net refers only to the transfer necessary to narrow the gap between poverty and extreme poverty, then the reference point for estimation must be the average income of the poor. Otherwise the econometric estimation would overstate the amount of the transfer needed by each household.

Table 5 shows the equation selected for the estimation of benefits. This equation must be considered as preliminary because it is based on 1993 information (the 1998 LSMS is not available yet) and because project resources did not allow for more sophisticated modeling.

Table 5. OLS Estimates of Socioeconomic Factors Associated with Extreme Poverty*	
Variable	**Coefficient (significance level in parenthesis)**
Rural location (1,0)	-14.22 (.0000)
Safe water (1,0)	16.96 (.0000)
Severe handicap (1,0)	-4.13 (.13)
Primary education of household head (1=completed primary school, otherwise=0)	13.06 (.0000)
Secondary education of household head (1=completed secondary school, otherwise=0)	19.80 (.0000)
Number of children under five yrs.	-6.31 (.0000)
Number of children less than five yrs.	-8.19 (.0000)
Constant	141.84 (.0000)
R^2	0.18
F	60.74
N	1,932

Source: Estimated from the LSMS, 1993.
*Dependent variable: monthly household expenditures per capita. The sample includes only those people below the poverty line.

The above results are consistent with the indicators of poverty for the entire population. The difference is due to the data base, since the above equation applies only to the poor in order to determine the amount of transfer to bring those in extreme poverty closer to the poverty line. Using the regression coefficients in combination with the mean values of each variable in the equation[20] yields the following monetary assessment of the contribution of each variable to monthly expenditures (Table 6).

[20]Table A1 in the Annex shows the mean values for all the variables in the regression. The results from Table 6 must be considered with caution, since the R^2 is low.

Table 6. Per Capita and Household Compensations for the *Extreme* Poor by Key Variable (in 1994 US$)		
Socioeconomic variable	**Per capita**	**Per household**
Average monthly expenditure	20.89	154.6
Rural	1.56	11.54
Safe water	0.95	7.03
Severe handicap	0.1	0.01
Primary education	0.76	3.8
Secondary education	0.23	1.15
Children 1–5 yrs.	1.45	2.0
Children less than 1 yr.	1.52	1.7

Source: Estimated from the LSMS 1993.

The average per capita expenditure for the poor is US$20.89 per month. Among the poor, however, there are some differences in per capita expenditures that relate to their socioeconomic conditions. Controlling for the factors outlined in the regression analysis these socioeconomic conditions can be quantified in order to determine the amount of money needed to get those people above the extreme poverty line. If a poor person lives in a rural area and all other variables remain equal, then that person would have to receive US$1.56 in transfers to achieve expenditure parity with the average urban poor person. Using a similar logic Table 6 shows that US$0.95 would account for safe water parity among all poor, US$1.52 for every child under one year of age, and US$1.45 for every child under five. If all the variables apply to an average household in extreme poverty, then the level of monthly household expenditures would increase to US$181.1, or US$24.56 per capita. This figure is still lower than the poverty line of US$35.75, but well above the extreme poverty line of US$16.88. Under this method of imputing, a net transfer per capita ranging from US$3.67 to US$7.67 per month would help the extreme poor achieve parity with the rest of the poor—*this is what a safety net is supposed to do.*[21]

In comparison, the local leader in Horno 3 gave the following information about the net cost of feeding her family (she counted herself among the fifteen families in extreme poverty in her community).

[21] A quick check on the above figure can be obtained as follows: If the average expenditure gap of a household in extreme poverty is 34 percent, then to ensure food requirements an average family in extreme poverty (with a per capita expenditure of US$17 per month) would have to receive (17 * 1.34)-17= US$5.78 per household member each month. A figure of US$7.67 is higher because it relies on discrete markers such as the number of children under five.

Table 7. Reported Daily Food Expenditure of an Extremely Poor Household in El Horno, San Ramón, 1998 (family size: 2 adults, four children 4–14)			
Food type	**Daily cost (US$)**	**Monthly per capita cost (US$)**	**Monthly food cost (US$)**
Beans (2 lbs.), rice (1 lb.), corn (6 lbs.)	2.0	10.0	60.0
Cooking oil, salt, spices, home-grown vegetables	0.5	2.5	15.0
Total	2.5	12.5	75.0

The reporting family in El Horno 3 shows a monthly per capita expenditure on food of US$12.5, which is 26 percent lower than the extreme poverty line—meaning that this particular family had an extreme poverty gap of 26 percent. This extreme poverty gap is very consistent with the results of the LSMS of 1993 and with the regression results.[22]

The Role of Local Governments in the Implementation of a Safety Net

Local governments in Nicaragua have become good partners with line ministries—even those line ministries that still remain centralized. Municipal governments have been effective in organizing and using the Municipal Development Committee (MDC) as the main body for local planning, decision-making, and discussion for the community. This committee includes local delegates of line ministries, local leaders, and representatives of civil society. The MDC shows all the imperfections typical of local of politics, but it has also achieved significant gains in local accountability over the last few years. As a consequence, about one-third of the municipal governments in the country now use the MDC as the main forum for the discussion, planning, and execution of all the infrastructural investment in health and education. In addition, the MDC is the main vehicle through which the central government gets the political legitimacy necessary to implement reforms in the social sectors.[23] Although municipal decentralization is still in its incipient stages—the central government is still debating the size and scope of fiscal transfers to local governments—most social sector projects rely on consultation with the MDC for decision making. Given the stage of development of local governments—particularly those in areas with a predominance of poor people—it is necessary to include the MDC in the operation of a safety net.

[22]An important issue that is not addressed here in detail because of the scope of the paper is the transfer in purchasing parity from 1993 to 1998. The exchange rate in 1993 was six córdobas per one US dollar, while in 1998 it was of eleven córdobas per one US dollar. If the food expenditures reported by the woman leader of El Horno were exchanged at the 1993 level, total food expenditures would be US$120 instead of US$75. However, the information necessary for making the proper conversion for the purchasing parity of córdobas from 1993 to 1998 is not available yet.

[23]The Fondo de Inversión Social de Emergencia (FISE) has begun a pilot program in forty-seven municipalities. In this program municipal governments—through the MDC—have complete control of infrastructural investment.

There are several comparative advantages of having local governments involved in the implementation of a safety net. Local governments

- have a better knowledge than the central government about the location and depth of poverty in qualitative terms;
- have better representation of local leaders in the decision process for geographical targeting at the submunicipal level;
- aid in lowering administrative costs in the distribution of cash benefits; and
- have better long-term accountability through the MDC if given objective data about benefit capture.

The disadvantages of incorporating local governments are that

- there is more opportunity for collusion among local political leaders in the selection of geographical areas, which could produce short-term leakage;
- low technical capacity for program implementation;
- not as much numerical or statistical knowledge about the extent and depth of poverty; and
- more fragility in the process of consensus building.

Given these advantages and disadvantages, the design of a safety-net program must complement central technical skills (program design, the choice of markers for household selection, monitoring, and evaluation) with local administrative and managerial skills (setting geographical priorities, improving qualitative monitoring, lowering administrative costs, and improving financial accountability). In summary, a safety net must create a symbiosis between central and local governments in order to succeed.

Transfers in Kind or in Cash?

An example of the symbiosis between the central government and the municipal government is the issue of choosing between cash or in-kind benefits. Table 8 describes the results of a discussion with local leaders in San Ramón.

Table 8. Local Concerns about the Design of a Safety Net, San Ramón				
Benefit option	**Pros**	**Cons**	**Implementation questions**	**Local conditions and institutions**
Cash transfer	Easy to administer	Susceptible to household theft	Who in the family receives it? • mother • father • couple	Good presence of central government ministries, or local NGOs and grassroots organizations already working in community development, which could be contracted out to deliver the cash transfers.
	Flexible to beneficiaries	Inappropriate expenditures	Payment intervals • monthly • biweekly	Families can easily access food shops to make their purchases, although difficult in some extremely poor areas.
	Fewer administrative steps	Can cause jealousies among nonrecipients	What should be the transfer amount? What percent of family food expenditures?	Value of cash transfer kept to locally acceptable levels
	Fewer opportunities for corruption	It can lead to dependency	What should be the length of participation by beneficiaries?	
	It can help the local economy		What should beneficiaries give in exchange? • children's school attendance • participation in basic health programs	Recipients should give something back to the community

Table 8 (cont.). Local Concerns about the Design of a Safety Net, San Ramón				
Food coupons or in-kind Trans-fers	Reduces inappropriate expenditures	Highly susceptible to Central Government corruption. Many administrative steps	Who purchases the food? Who stores it? Where? What would be the role and impact of local shops? How long will recipients get the benefits? Who would distribute the in-kind benefits locally?	Good presence of local NGOs already working in community development, which could be contracted out to deliver the in-kind transfers
	Fewer opportunities for household theft	Prone to local institutional corruption		The scheme must be implemented on days and seasons that do not interfere with normal production labor
Benefit option	**Pros**	**Cons**	**Implementation questions**	**Local conditions and institutions**
	Increases nutritional level of participants	Less flexible to beneficiaries	What should beneficiaries give in exchange? • children's school attendance • participation in basic health programs	Local formal supervision kept to a minimum
	More direct than cash	It can cause jealousies among nonrecipients	How much food should recipients get?	Value of transfer must be kept at locally acceptable levels
	It feeds vulnerable groups	Could cause dependency	What kind of foods?	Local leaders can give feedback on uses of food
Food for work	It does not cause dependency	More bureaucratic	What should they do? Who chooses locations? How convenient is it for participants with no transportation?	World Food Program could give technical assistance during implementation
	The community benefits from the program outcomes	Less direct assistance to vulnerable groups unable to work	Who decides who participates?	Local governments must agree to participate
	Food for work is more transparent for targeting	Skilled workers capture most of the funding	What is the proper balance between skilled and nonskilled labor?	Production labor does not compete with food-for-work labor.

Table 8 (cont.). Local Concerns about the Design of a Safety Net, San Ramón				
	It could be combined with worker on-the-job training	Opportunities for political patronage	What kind of participant? Where?	Food-for-work is combined with other programs to target people who cannot work—children, the elderly.
	Wages lower than private employment —less jealousies.	Managerially demanding	How much to pay?	Program could work year-round.

Table 8 reflects valid concerns from local government leaders—concerns that have also been found to affect the effectiveness of safety nets everywhere.[24] Table 8 also shows that local leaders can suggest solutions and compromises necessary to ensure program effectiveness. The CAER team's discussions with local leaders indicated a preference for cash transfers. Howevera clear consensus did not emerge, since the leaders indicated that they needed more information from a pilot program and some direct experience in order to suggest a clear alternative.[25]

A Preliminary Scheme for Implementing a Safety Net

Given the above concerns, this section suggests a preliminary scheme for the implementation of a safety net. The benefits would be piecemeal cash transfers contingent upon pre-school and primary school attendance, as well as participation in maternal and child health programs by households in extreme poverty.

Targeting of Beneficiaries

To qualify for benefits a household must

- live in extreme poverty;
- have access to education and health services of minimum quality; and
- meet minimum levels of school attendance and maternal and child health services.

The selection of geographical areas would be undertaken in two stages. The first stage would be the listing of municipalities according to their poverty ranking in the national poverty map. The

[24]World Bank, 1997. "Designing Effective Safety-Net Programs." *Poverty Lines*, No. 7, Policy Research and Social Policy Departments, Washington, D.C.
[25]In fact, the Inter-American Development Bank is now in the process of designing a pilot project in several municipalities in order to test many of the above suggestions.

second stage would be the selection of *comarca*s and *barrio*s by the MDC in direct collaboration with safety-net technical staff. To aid in the selection process the technical staff would access as much objective information as there is available from line ministries about the availability of education and health services, and subject their list to ground-truthing by the MDC. To avoid the tendency by local leaders to declare a uniform level of extreme poverty in the community (i.e., "we are all extremely poor here") the MDC would have to allocate a fixed number of beneficiaries in their municipality. To aid the MDC in the selection process the technical staff would use markers such as access to potable water, distance to school and health posts, and the prevalence of malnutrition—as indicated by the anthropometric measurements regularly done by the Ministry of Health.

The resulting list of selected geographical areas would be ranked again in terms of poverty priority by the MDC.[26] With this list, the local safety-net supervisor would visit each selected geographical area and—with the aid of community leaders—apply a selection protocol that would list each family's key variables (access to safe water, sanitation, and family composition). This list would be processed by the safety-net staff in order to come up with a list of potential beneficiaries and the amounts of benefits available.

The MDC would be given the list of potential beneficiaries and the power to allocate benefits until funds for that municipality are exhausted.

The list of beneficiaries would be given back to local leaders in each *comarca* or *barrio* for validation at community meetings, where the people in the *comarca* or *barrio* can question the accuracy of the list or add those families who were left out of the survey. Once each community agrees to the list of beneficiaries, the municipal government would disburse benefits periodically, receiving in exchange a commission of about 2 percent for performing the service.

School attendance by participating children is validated by the parents council,[27] and participation in health programs is validated by the records kept by health staff. Each month, the listing of those children and mothers who complied with the safety-net requirements is sent to the safety-net central offices for processing, and on the basis of this information, the municipal government would be sent a master list of beneficiaries for that month with the corresponding funds for distribution. Each local government agrees to a spot-check by independent contractors, who would verify eligibility and compliance with program standards.

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[26] A potential problem discussed by local leaders was the need to determine program coverage when funds were insufficient for serving all extremely poor families. Some suggested that to be equitable it was preferable to give less to everyone, while others suggested giving benefits to every area in the municipality, being more stringent in the selection of beneficiaries within each community. This is an important area for discussion that was left incomplete because of the time and budget pressures in this study.

[27] Parents councils do validate attendance, since the Ministry of Education has a teacher-performance incentive scheme in operation that relies on school attendance.

Final Comments

The formal, national-level indicators of poverty derived from LSMS data were similar to information gathered by the CAER team. For example, key informants in San Ramón and Matiguás agreed that lack of safe water and lack of education were indicators of poverty at the local level. They also included the following poverty indicators: poor housing, lack of electricity, lack of latrines, poor roads, poor health of children and the family—including nutritional intake, weight, and size. LSMS data listed other correlates of poverty as access to running water, household size, educational attainment, and work in agriculture. Both sources of data, in general, depict lack of infrastructure and services as indicators of poverty.

From the interviews it was clear that local leaders were able to differentiate among four levels of poverty in their communities, which clearly helps the process of targeting benefits at the local level. The officials, local leaders, and informants clearly knew who in their communities were most in need. Another important discovery of this project was the need for flexibility in the design of a safety net. Key informants gave differing responses when asked about the optimal design of a safety net for their community. Important factors in determination of the design included the response of the community to previous development programs, the desired level of involvement by local government, and the presence of local NGOs and grassroots organizations that could be contracted with to deliver safety-net services.

In some communities, it was determined that cash transfers would be the most successful, while in others, food for work or in-kind transfers would be better. For example, a cash-transfer program would need an environment where families could easily access food shops to make their purchases, while an in-kind transfer of food would need to be a locally acceptable food product. The key factor was that local environments had specific characteristics that would either support or hinder different safety-net program designs, and a successful design would match characteristics of the environment with complementary characteristics in a safety net. Such information can only be obtained from local input. Local environmental characteristics would also determine the executing agency and institutional channels for distribution of safety-net services.

This project has a two-step approach to targeting safety net recipients. The initial step involves the use of national level survey data to identify the broad geographic regions in which poverty is located. The second step is the selection of the specific screening criteria selected in collaboration with local leaders. Because poverty can manifest itself differently in different communities, national screening characteristics often are inaccurate. It was discovered that local people have the capacity to distinguish between levels of poverty in their communities. Local leaders can also help determine which implementation strategy will work best in their community. This local approach to targeting safety-net services and to the actual safety-net design can reduce overall safety-net costs, channeling more aid directly to the people in need.

Annex

Table A1. Average Value of Selected Socioeconomic Variables, Population under the Poverty Line, 1993	
Variable	**Poor households**
Rural location	66.6 %
Safe water	33.7%
Household member with severe handicap	15.8%
Household head with primary education	35.2%
Household head with secondary education	6.2%
Number of children 1–5 yrs.	1.38
Number of children less than 1 yr.	1.12
Per capita monthly expenditure	US$20.89